TENMA TEST EQUIPMENT

MODEL 72–2070

MONITOR TESTER

INSTRUCTION MANUAL

TENMA MODEL 72–2070 MONITOR TESTER

FEATURES

A. 24 scan formats for Model 72–2070 for testing CGA, MDA, PGA/G, VGA, Super VGA, Extended VGA, and high resolution monitors.

B. Five video patterns – color bars, color raster, windows, lines, and dots.

C. RGB video, Intensity, and Sync On Green on–off controls.

D. Multiple output connectors – digital/TTL 9–D, analog 9–D, and analog 15–HD. Optional connector adapter Model 72–1080 for interfacing to MAC II and BNC connectors.

E. Hand–held unit and powered by an external 9 to 12 VDC.

SPECIFICATIONS

A. Scan Formats and Output Connectors:

1. 15.7 KHz, 60Hz, 240 lines, CGA, Digital 9–D.
2. **18.4 KHz, 50Hz, 350 lines, MDA, Digital 9–D.**
3. 21.8 KHz, 60 Hz, 348 lines, EGA, Digital 9–D.
4. **25.4 KHz, 60 Hz, 400 lines, Analog 9–D*.**
5. 25.8 KHz, 60 Hz, 400 lines, Digital 9–D**.
6. **30.5G KHz, 60 Hz, PGA G 480 lines, Analog 9–D.**
7. 31.5 KHz, 70Hz, 350 lines, VGA, Analog 15–HD.
8. **31.5 KHz, 70 Hz, 400 lines, VGA, Analog 15–HD.**
9. 31.5 KHz, 60 Hz, 480 lines, VGA, Analog 15–HD.
10. **35.0 KHz, 67 Hz, 525 lines, MACII, Analog 9–D*.**
11. 35.2 KHz, 56 Hz, 600 lines, SVGA, Analog 15–HD.
12. **35.5 KHz, 87 Hz, 384 lines, VGA–8514, Analog 15–HD.**

SPECIFICATIONS

A. Scan Formats and Output Connectors Cont'd.:

13. 37.9 KHz, 60.3 Hz, 600 lines, SVGA (VESA), Analog 15–HD.

14. 44.9 KHz, 67 Hz, 624 lines, Analog 9–D*.

15. 48.1 KHz, 72.1 Hz, 600 lines, SVGA (VESA), Analog 15–HD.

16. 48.4 KHz, 60 Hz, 768 lines, SVGA (VESA), Analog 15–HD.

17. 54.9 KHz, 60 Hz, 874 Lines, Analog 9–D*.

18. 56.4 KHz, 70Hz, 768 lines, SVGA (VESA), Analog 15–HD.

19. 61.8 KHz, 66 Hz, 900 lines, Analog 9–D*.

20. 63.4 KHz, 60 Hz, 1024 lines, Hi–res, Analog 15–HD.

21. 64.0 KHz, 76 Hz, 800 lines, Monochrome, Analog 9–D*.

22. 70.8 KHz, 67 Hz, 1024 lines, Monochrome, Analog 9–D*.

23. 71.7 KHz, 76 Hz, 900 lines, Analog 9–D*.

24. 75.1 KHz, 70 Hz, 1024 lines, Analog 9–D*.

* Requires an optional Connector Adapter Model Tenma 72–1080.

** Requires adapter cable (not supplied).

SPECIFICATIONS CONT'D.

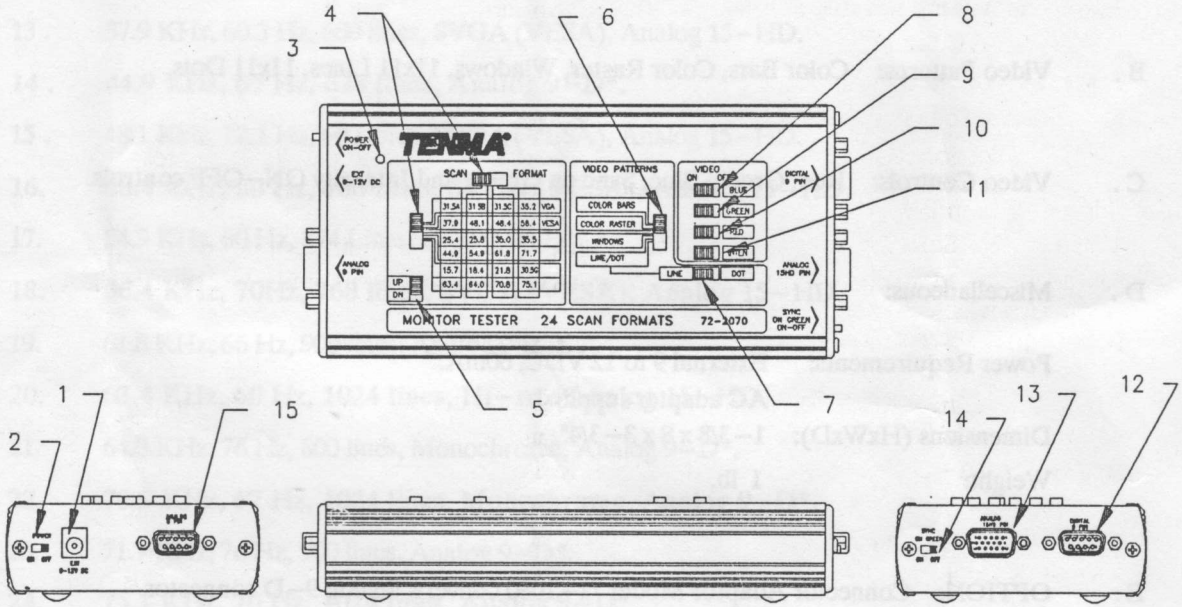
B. Video Patterns: Color Bars, Color Raster, Windows, 11x11 Lines, 11x11 Dots.

C. Video Controls: Red, Green, Blue, Sync on Green, and Intensity ON–OFF controls.

D. Miscellaneous:

Power Requirements:	External 9 to 12 VDC, 60mA. AC adapter supplied.
Dimensions (HxWxD):	1–3/8 x 8 x 3–3/4"
Weight:	1 lb.

E. OPTION: Connector Adaptor Model 72–1080 converts analog 9–D connector into MAC II 15–D, RGB and Composite Sync BNC connectors. The Connector Adapter is not supplied.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13
12
TEKNA
POWER ON-OFF
EXT 9-12V DC
SCAN FORMAT
VIDEO PATTERNS
VIDEO ON OFF
DIGITAL 9 PIN
ANALOG 9 PIN
ANALOG 15HD PIN
SYNC ON GREEN ON-OFF
COLOR BARS
COLOR RASTER
WINDOWS
LINE/DOT
LINE
DOT
RED
GREEN
BLUE
WHITE
UP
DN
MONITOR TESTER 24 SCAN FORMATS 72-2070

CONTROLS AND INDICATORS

1. Power Input Jack. Accepts external 9 to 12 VDC power.
2. Power On–Off Switch.
3. Power on indicator, red LED.
4. Scan Format Selection Switches. See Scan Format Matrix. (Pg. 2)
5. UP/DW Selection Switch (Model 72–2070 only). Selects scan format in solid color areas when this switch is on UP position. Selects scan format in the dotted areas (3rd and 4th rows) when this switch is on DW position.
6. Video Pattern Selection Switch. Selects color bars, windows, raster, lines, or dots video pattern.
7. Lines/Dots Selection Switch. Selects lines or dots video pattern when the Video Pattern Selection Switch (6) is on Lines/Dots position.
8. Blue Video On–Off Switch. Turns blue video on and off; also turns video on and off for MDA monitor.
9. Green Video On–Off Switch. Turns green video on and off. For high resolution monochrome monitor, this switch is also used for video on–off control.
10. Red Video On–Off Switch. Turns red video on and off.
11. Intensity On–Off Switch. Places this switch to its on position will increase the video intensity.
12. Digital/TTL 9–D Connector. Connects CGA, MDA, or EGA monitor to this connector.
13. Analog 15–HD Connector. Connects VGA, super VGA, VESA or XGA monitor to this connector.
14. Sync On Green Switch. Places this switch to its on position to superimpose the composite sync to the green video signal for certain monitors.
15. Analog 9–D Connector. Connects PGA/G monitor to this connector. Also connects Connector Adapter 72–1080 to this connector for MAC II and BNC interfaces.

* NEVER CONNECTS 72–1080 TO THIS CONNECTOR.

TENMA 72–2070 SCANNING FORMAT MATRIX

31.5KHz VGA 350	31.5KHz VGA 400	31.5KHz VGA 480	35.2KHz SVGA 600
37.9KHz VESA 600	48.1KHz VESA 600	48.4KHz VESA 768	56.4KHz VESA768
25.4KHz 44.9KHz	25.8KHz 54.9KHz	35.0KHz 61.8KHz	35.5KHz 71.7KHz
15.7KHz 63.4KHz 1024	18.4KHz 64.0KHz 800 MONO	21.8KHz 70.8KHz 1024 MONO	30.5G KHz 75.1KHz 1024

OPERATION

1. Place the Scan Format Selection switches to the proper scan format position for the monitor under test.
   DO NOT LOAD ANALOG 9–D AND ANALOG 15–HD SIMULTANEOUSLY.

2. Connect the monitor to the proper output connector of Monitor Tester per Scan Format Chart.
   In general,
   a. Connect VGA, Super VGA, VESA, or Extended VGA including 1280x1024 high resolution color monitor to 15–HD connector.
   b. Connect CGA, MDA, or EGA monitor to digital 9–D connector.
   c. Connect PGA/G monitor to analog 9–D connector.
   d. Connect the optional Connector Adapter 72–1080 to analog 9–D connector for MAC II 15–D or BNC interface.
   e. Connect adapter cable (not supplied) for AT&T type monitors to Digital 9–D connector for 25.8KHz scan format.

3. Turn the power on to both monitor and Monitor Tester.

4. Place Red, Green, and Blue video signal switches to on position. For high resolution monochrome monitor, the Green video switch is used for video on–off control. For MDA monitor, the Blue video switch is used for video on–off control.

5. Place Sync On Green switch to off position unless the monitor under test requires Sync On Green video signal.

6. Select the desired video pattern.

7. Place the Intensity switch to on position for high intensity level.

CONNECTOR PIN ASSIGNMENTS (DO NOT CONNECT ANY PIN TO > 5.5V)

Pin	Digital 9–D			Analog 9–D	Analog	MAC II
No.	CGA	MDA	EGA	PGA/G	15–HD VGA	15–D *
1	Gnd	Gnd	Gnd	Red, .6V	Red, .6V	Gnd
2	Gnd	Gnd	Int	Grn, .6V	Grn, .6V	Red, .6V
3	Red	HIZ	Red	Blu, .6V	Blu, .6V	Sync, TTL
4	Grn	HIZ	Grn	Sync, TTL	Gnd	Gnd
5	Blu	HIZ	Blu	Mode=1	Gnd	Grn, .6V
6	Int	Int	Int	Gnd	Gnd	Gnd
7	HIZ	Video	Int	Gnd	Gnd	NC
8	+HS	+HS	+HS	Gnd	Gnd	NC
9	+Vs	–Vs	–Vs	Gnd	NC	Blu, .6V
10					Gnd	NC
11					NC	Gnd
12					NC	NC
13					+/–Hs, TTL	Gnd
14					+/–Vs, TTL	Gnd
15					NC	NC

HIZ = High Impedance

* See application section.

Note 1: To prevent from overloading the analog video signals, the Analog 9–D and Analog 15–HD connectors should not be used simultaneously.

Note 2: Do not connect Model 72–1080 to 72–1070 Digital 9–D connector.

APPLICATION FOR MONITORS WITH 15–PIN, 25–PIN OR BNC INTERFACE

1. 25.8 KHz/60 Hz Scan Format for AT&T PC6300 monitor:
   a. Connect a 9D(male) to 25D(female) adapter cable (not supplied) to convert 25–pin monitor to 72–2070 Digital 9–D connector.
   b. Connect the 25D connector to monitor.

2. 35.0 KHz/67 Hz Scan Format for MAC II monitor:
   a. Connect the optional Connector Adapter Model 72–1080 to 72–2070 Analog 9–D connector.
   b. Connect the monitor to 15–D connector.

3. 70.8 KHz/67Hz Scan Format for IBM RS6000 monochrome 8508 monitor:
   a. Connect the optional Connector Adapter Model 72–1080 to 72–2070 Analog 9–D connector.
   b. Connect monitor video input to 72–1080 Green BNC jack.
   c. Set Sync on Green switch to "ON" position, and use Green on–off switch to control video signal.

4. For monitors require BNC interface, use 72–1080.